Variational Methods for Latent Variable Problems

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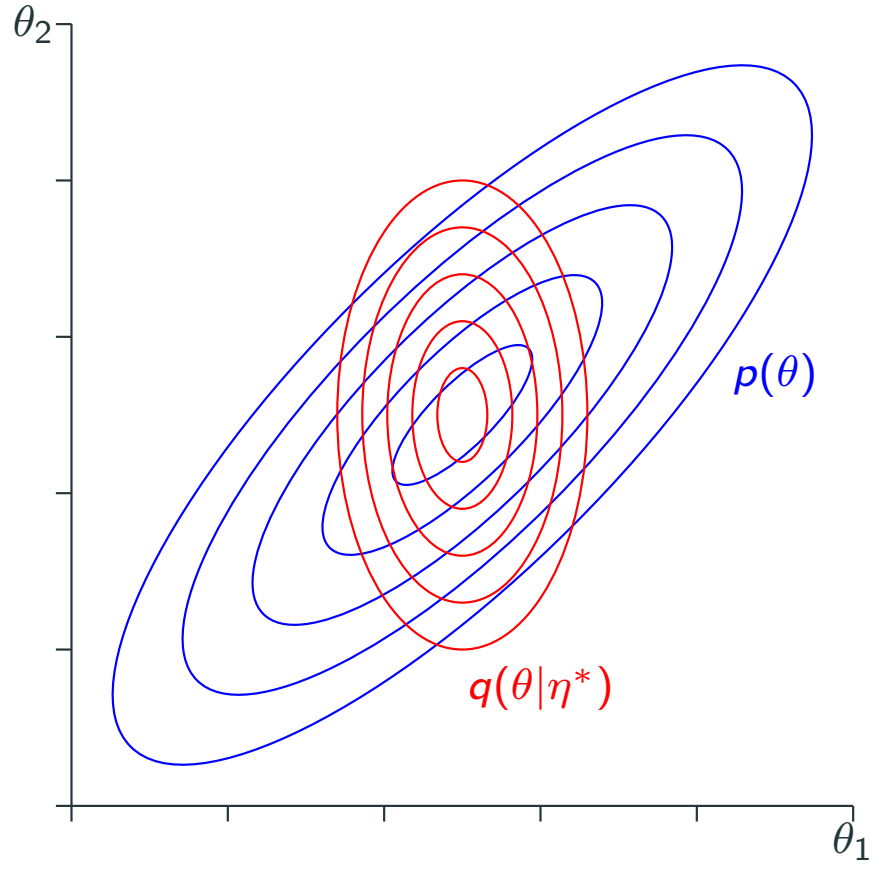
Outline

Outline for today:

- Some examples of latent variable models
- A template: The Neyman-Scott "paradox" and marginalization
- Bayesian versus frequentist approaches to marginalization
- The classical EM algorithm (in brief)

Next week, we will build on these ideas to present more general variational inference.

Some bullshit



Conclusions

Y. Luan and H. Li. Clustering of time-course gene expression data using a mixed-effects model with B-splines. *Bioinformatics*, 19(4):474–482, 2003.

R. Meager. Aggregating distributional treatment effects: A Bayesian hierarchical analysis of the microcredit literature. *LSE working paper*, 2020.

Jeffrey Regier, Keno Fischer, Kiran Pamnany, Andreas Noack, Jarrett Revels, Maximilian Lam, Steve Howard, Ryan Giordano, David Schlegel, Jon McAuliffe, et al. Cataloging the visible universe through bayesian inference in julia at petascale. *Journal of Parallel and Distributed Computing*, 127:89–104, 2019.